

## Daylighting Quality

With a small building footprint and a relatively large vertical surface area, the CUSD house has the unique opportunity to supply almost all of its lighting with daylight. Keeping this in mind, we have created two large apertures, one on the south side of the building and one on the north side of the building. The southern aperture is a tri-fold glass door, opening to the living room on the west side of the house. This fenestration provides ambient light and some heat to the space during the day. Occupants can take advantage of this daylight as they go to and return from work, prepare meals, and relax in the living area. Concrete pavers (thermal mass) are placed inside and outside of the southern aperture, bridging the threshold between interior and exterior spaces. The bridging of these two spaces makes the home feel larger and also encourages the occupant to interact with the landscape as well as the building's interior.

The northern aperture provides daylighting and views from the bedroom. Like the southern glass door, the northern aperture opens to the exterior, allowing for convenient circulation through the house and also "opens the door" for natural cross-ventilation.

All of the windows on the CUSD house are triple-glazed with a krypton fill and coated with a low-e film. This window construction reduces heat transmittance between the interior and exterior, giving us a window R-value of 9. Both the northern and southern apertures are complemented by insulating accordion blinds that add privacy and the option to reflect light and heat. The blinds can also be called upon to reduce or eliminate glare while the television or workstation are in use. An overhang over the southern exposure is used, sometimes in conjunction with the blinds, to eliminate direct daylight from entering the space during cooling months.

In addition to the large apertures, several smaller apertures are placed throughout the house to add daylight and views. A small window on the eastern side of the house is used for views toward the rising sun and the Capitol (during the Solar Decathlon Competition). A window in front of the workstation provides a glowing light source for the working surface. The frosted panel in front of this window filters the indirect light, reduces outside distractions and can add privacy. A frosted panel in front of the shower adds a passive light source for the bathroom, while also providing a sexy and adventurous privacy barrier.

The design of the CUSD daylighting scheme is integrated, sophisticated and exciting. As any observer can tell, each aperture serves more than one purpose and adds significant character to the essence of the house. We feel that the relationship of our daylighting scheme and our building architecture will provide an optimal environment for living and working.